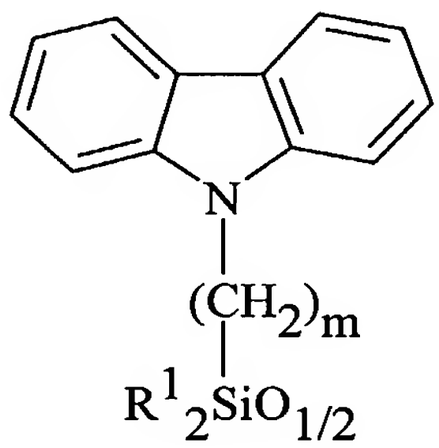
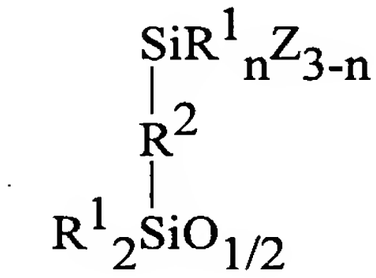
That which is claimed is:

1. A carbazolyl-functional polysiloxane resin comprising units having the formula I, units having the formula II, and units having the formula III:



$R^1{}_2SiO_{1/2}$ (I)

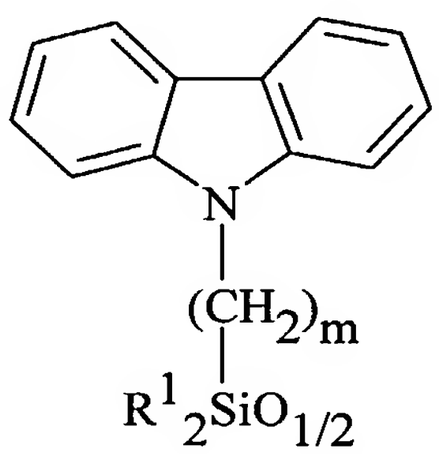


$R^1{}_2SiO_{1/2}$ (II) $SiO_{4/2}$ (III)

wherein R^1 is C_1 to C_{10} hydrocarbyl free of aliphatic unsaturation; R^2 is $-CH_2-CHR^3-$ or $-CH_2-CHR^3-Y-$, wherein Y is a divalent organic group and R^3 is R^1 or -H; Z is a hydrolysable group; m is an integer from 2 to 10; n is 0, 1, or 2; the mole ratio of units (I) to units (II) is from 4:1 to 9:1; and the mole ratio of units (I) and units (II) combined to units (III) is from 1.2:1 to 1.8:1.

2. The carbazolyl-functional polysiloxane resin according to claim 1, wherein the mole ratio of units (I) to units (II) is from 6:1 to 9:1, and the mole ratio of units (I) and units (II) combined to units (III) is from 1.4:1 to 1.8:1.

3. A carbazolyl-functional polysiloxane resin comprising units having the formula I and units having the formula III:



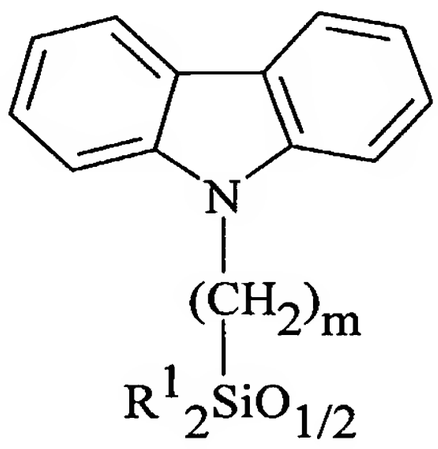
$R^1{}_2SiO_{1/2}$ (I) $SiO_{4/2}$ (III)

wherein R^1 is C_1 to C_{10} hydrocarbyl free of aliphatic unsaturation, m is an integer from 2 to 10, and the mole ratio of units (I) to units (III) is from 1.2:1 to 1.8:1.

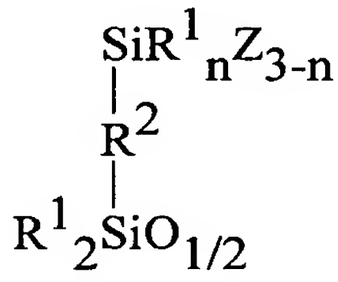
4. The carbazolyl-functional polysiloxane resin according to claim 3, wherein the mole ratio of units (I) to units (III) is from 1.4:1 to 1.8:1.

5. A silicone composition comprising:

(A) at least one carbazolyl-functional polysiloxane resin comprising units having the formula I, units having the formula II, and units having the formula III:



$R^1{}_2SiO_{1/2}$ (I)



$R^1{}_2SiO_{1/2}$ (II) $SiO_{4/2}$ (III)

wherein R^1 is C_1 to C_{10} hydrocarbyl free of aliphatic unsaturation, R^2 is $-CH_2-CHR^3-$ or $-CH_2-CHR^3-Y-$, wherein Y is a divalent organic group and R^3 is R^1 or -H, Z is a hydrolysable group, m is an integer from 2 to 10, n is 0, 1, or 2, the mole ratio of units (I) to units (II) is from 4:1 to 9:1, and the mole ratio of units (I) and units (II) combined to units (III) is from 1.2:1 to 1.8:1;

(B) a condensation catalyst; and

(C) an organic solvent.

6. An organic light-emitting diode comprising:

a substrate having a first opposing surface and a second opposing surface;

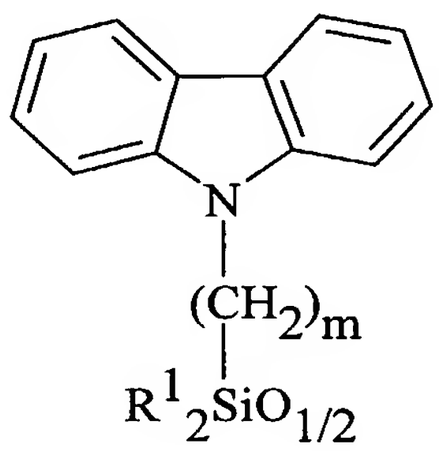
a first electrode layer overlying the first opposing surface;

a light-emitting element overlying the first electrode layer, the light emitting element comprising

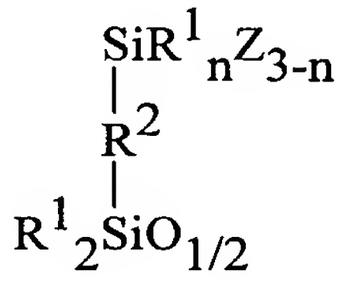
a hole-transport layer and

an electron-transport layer, wherein the hole-transport layer and the electron-transport layer lie directly on one another, and one of the hole-transport layer and the electron-transport layer comprises a carbazolyl-functional polysiloxane selected from

a cured carbazolyl-functional polysiloxane prepared by curing a silicone composition comprising (A) at least one carbazolyl-functional polysiloxane resin comprising units having the formula I, units having the formula II, and units having the formula III:



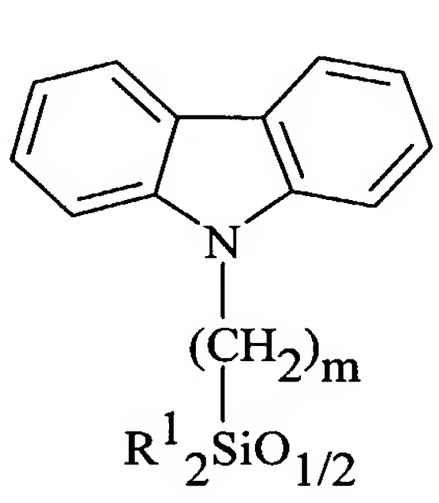
$R^1{}_2SiO_{1/2}$ (I)



$R^1{}_2SiO_{1/2}$ (II) $SiO_{4/2}$ (III)

wherein R^1 is C_1 to C_{10} hydrocarbyl free of aliphatic unsaturation, R^2 is $-CH_2-CHR^3-$ or $-CH_2-CHR^3-Y-$, wherein Y is a divalent organic group and R^3 is R^1 or –H, Z is a hydrolysable group, m is an integer from 2 to 10, n is 0, 1, or 2, the mole ratio of units (I) to units (II) is from 4:1 to 9:1, and the mole ratio of units (I) and units (II) combined to units (III) is from 1.2:1 to 1.8:1, (B) a condensation catalyst, and (C) an organic solvent, and

at least one carbazolyl-functional polysiloxane resin comprising units having the formula I and units having the formula III:



$R^1{}_2SiO_{1/2}$ (I) $SiO_{4/2}$ (III)

wherein R^1 is C_1 to C_{10} hydrocarbyl free of aliphatic unsaturation, m is an integer from 2 to 10, and the mole ratio of units (I) to units (III) is from 1.2:1 to 1.8:1; and a second electrode layer overlying the light-emitting element.

7. The organic light-emitting diode according to claim 6, wherein the hole-transport layer is a carbazolyl-functional polysiloxane.

8. The organic light-emitting diode according to claim 6, wherein the electron-transport layer is a carbazolyl-functional polysiloxane.